HT32 ICP Tool

User Manual

For additional information or questions, please contact: Holtek Semiconductor.

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1. Overview

1.1. Introduction

"ICP" is the acronym of In-Circuit Programming, which makes it possible that the user can update the MCU's program memory under the software control without removing the mounted MCU chip from target PCB.

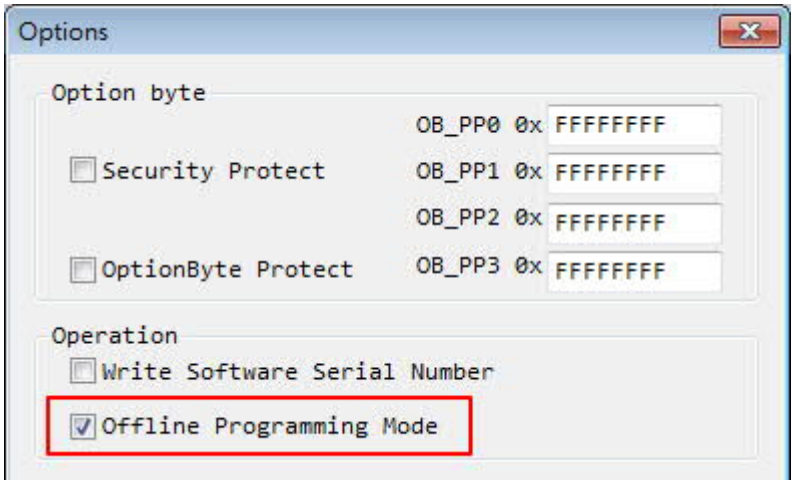
The HT32 ICP Programming Tool supports "online" and "offline" programming mode.

1.2. Features

- In-Circuit programming target chip
- Online/offline programming mode
- Write software serials number (SN) to target chip
- Limit the maximum programming count
- Data encryption for online/offline programming

2. Operation Modes of ICP Tool

The ICP tool supports "online" and "offline" programming mode.



2.1. Online Programming Mode

If the "Offline programming mode" option is unchecked, ICP Tool will program in online programming mode.

Click the “Start” button to start to program target device immediately.

The target device must be connected to e-Link32.

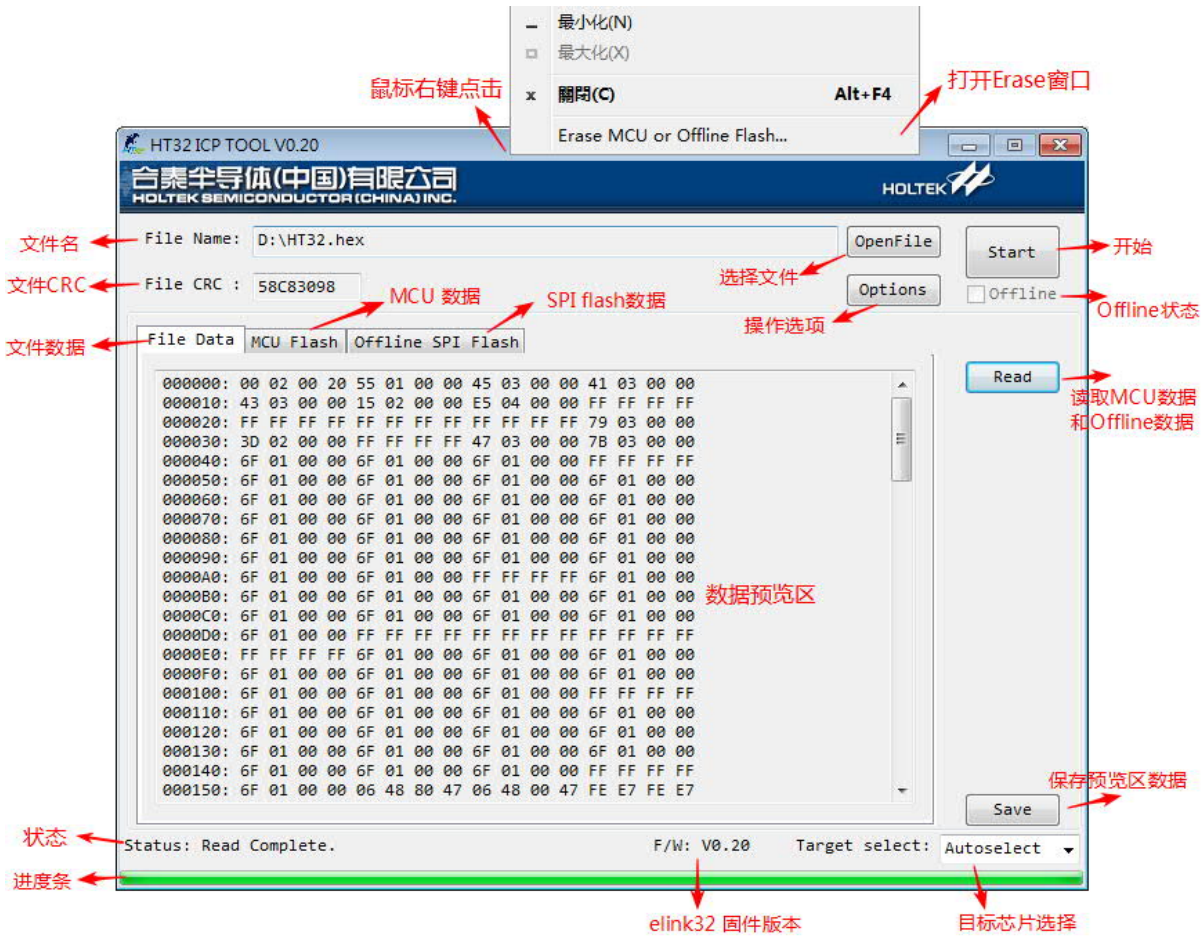
2.2. Offline Programming Mode

If the “Offline programming mode” option is checked, the ICP Tool will program in offline programming mode. Click the “Start” button to save the file data into e-Link32 at first,

Next, user can program the target devices with the eLink32 alone (instead of using PC and ICP Tool) by pressing the button on the e-Link32.

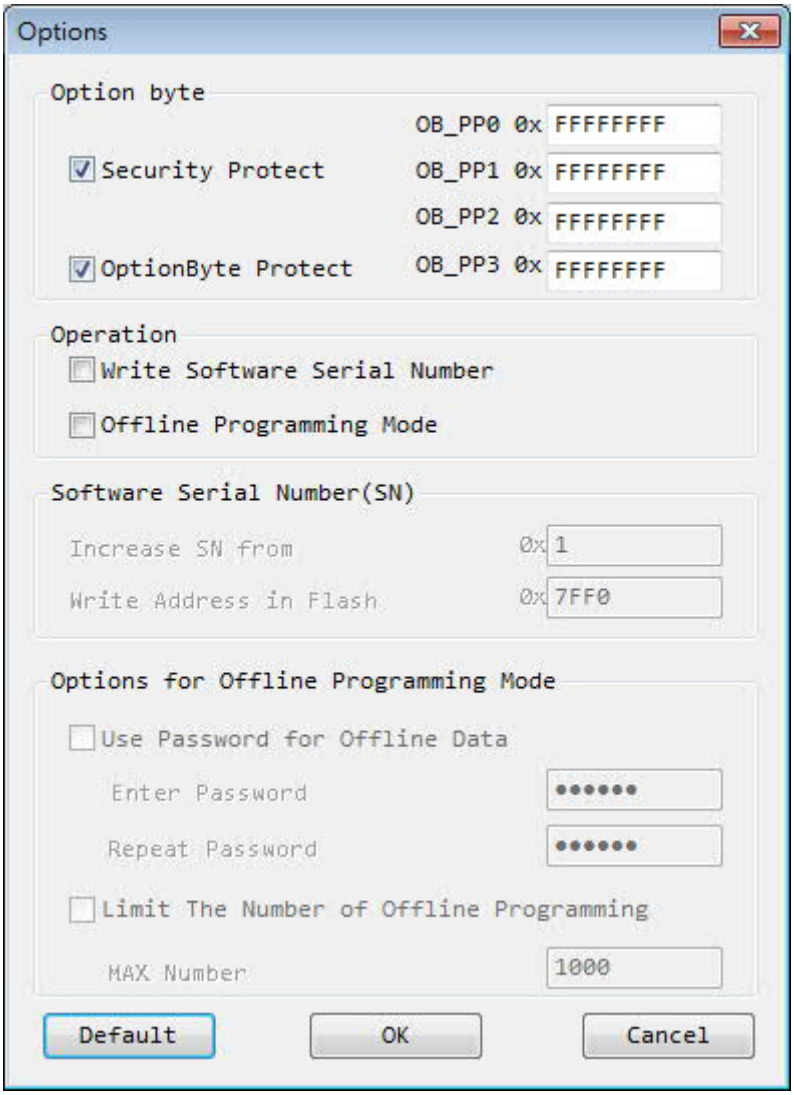
3. How to Use ICP Programming Tool

The main interface is shown below;.



ICP Tool User Interface

The options interface is shown below;.



ICP Tool programming options Interface

The Erase interface is shown below;.

ICP Tool Erase Interface

The steps of read operation:

A. Run the ICP Tool and connect to a e-Link32 to the PC.
B. Select the correct target chip type, if you want to read the target chip
C. Click the “Read” button and waiting for it to end

The steps of write to chip operation:

A. Run the ICP Tool and connect to a e-Link32 to the PC.
B. Select the correct target chip type
C. Select the object file(.bin or .hex)
D. Open “Options” interface, make sure “Offline Programming Mode” is NOT checked
E. Click the “Start” button and waiting for it to end

The steps of write to offline flash operation:

A. Run the ICP Tool and connect to a e-Link32 to the PC.
B. Select the correct target chip type
C. Select the object file(.bin or .hex)
D. Open “Options” interface, make sure “Offline Programming Mode” is checked
E. Click the “Start” button and waiting for it to end

   NOW, you can programming chip with e-Link32 alone.

   Press the button on the e-link32 board;

   Should see the orange-LED on immediately;

   Waiting for the orange-LED blink:

   if the orange-LED and the green-LED blink 3 times and then off, it means programming successful;

   if the orange-LED blink alone and continue many times, it means fail.

Notice: if there is not SPI flash on the e-Link32, the function of offline programming is reserved

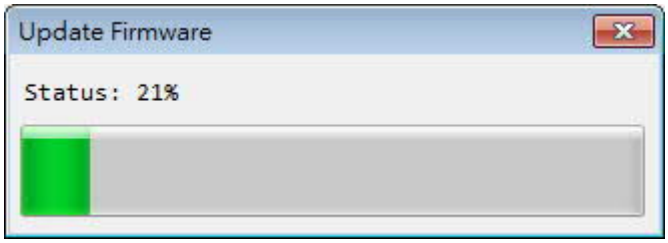
4. e-Link32 Firmware Update

Run the ICP Tool and connect to a e-Link32 to the PC.

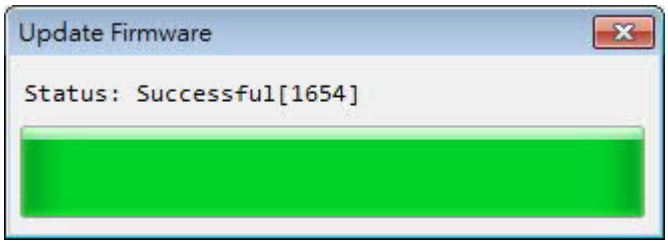
Process any read or write operation;

If the firmware version is older than ICP Tool, a firmware update form will be displayed, as shown below.

If you select yes,it will start update firmware,as shown below.



After a while,the status will show you update operation is complete.



Notice:Do not stop it when updating firmware, Otherwise it will always be in the IAP mode.

Revision History

Revision	Date	Description
0.04	2016-03-23	The first Public release version
0.05	2016-03-25	ICP Tool adds support for multiple e-Link32 when connected
0.06	2016-04-05	Fix VCOM bug
0.07	2016-04-12	Fix read option page bug
0.09	2016-05-26	F/W compatible with e-Link32 pro; fix SN not 0xffffffff bug
0.10	2016-06-02	Fix UART interrupt bug; add WDT
0.11	2016-06-14	When update Firmware, write version and SP at the end
0.12	2016/7/28	Fix VCOM descriptor
0.13	2016/9/28	Fix 1253 MDID error
0.14	2016/10/24	Fix offline WDT timeout bug
0.15	2016/12/15	1,Add interface string; 2,Support 52341 F/W update
0.16	2017/4/7	1,兼容某些串口软件打开端口的差异； 2,烧录时加入 CRC0； 3,修正 boot pin 拉低时脱机烧录出错； 4,界面加入最小化；
0.17	2017/5/2	1,增加 BKISO； 2,优化程序，SWD 提速，脱机烧录提速； 52341 版本 elink32 烧录 127K 52352 从原 7.1s 减至 2.6s； 1654 版本 elink32 烧录 127K 52352 从原 2.1s 减至 1.7s。
0.18	2017/12/14	1,增加 HT32F0008，HT32F5826 等型号； 2,修正对 52341 主芯片的 elink32 更新偶尔会失败的 bug； 3,UI 更新；
0.19	2017/12/18	1,修正更新 elink32 F/W 之后立刻写 target，数据是被覆盖的错误数据 bug;
0.20	2017/12/21	1,修正脱机烧录时，因 Reset 脚未连接，WDT 有可能会复位的 bug;
0.21	2018/01/24	1,修正目标芯片 SWD 切换到 GPIO,并且时钟源为 HSI 时会无法操作的 bug;
0.22	2018/03/09	1， 增加 CRC16，保持与 HOPE3000 的结果一致；去掉 AutoSelect 功能； 2， 修正新引入的 offline 烧录 LED 状态 bug 和 RESET pin bug； 3， 增加每周自动检查一次线上新版本功能； 4， 修改读取操作之后自动跳转到 MCU Flash 页面； 5， 增加芯片型号 HT32F0006;
0.23	2018/11/20	1， 增加 52344、52354； 2， 修改 uart 的波特率配置，最高可到 3Mbps； 3， Software 与 firmware 版本不一致就提示更新 firmware。
0.24	2019/04/08	1， Delete auto check update;

Revision	Date	Description
0.25	2019/08/28	1， 修正虚拟串口的相关 bug：打开串口的定义和 UART 的中断优先级;
0.26	2019/09/19	1， 增加 57331，57341 等 11 个新型号 MCU;移除几个太旧的型号； 2， Reset 改为 AutoDetect 模式；除睡眠或 SWD 被切成 GPIO，可不接 reset； 3， 可以拖拽文件到界面上来打开文件；
0.27	2019/10/31	1， 增加新型号 HT32F65230； 2， 修正打开超大文件会崩溃的 bug；
0.28	2019/11/14	1， 修改设置波特率的优先级，防止打开串口后立即发送数据可能出现波特率错误。

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